REMARKS

This invention is drawn to several processes for isolating an intact clone of a target nucleic acid fragment having a known characteristic from a group of fragments. The steps of the invention comprise preparing an initial library of clones, digesting the initial library first with a variety of restrictive enzymes to produce monodigested libraries, screening the libraries for the target fragment and determining the fragment's sensitivity to the restriction enzymes, further digesting the library with those restrictive enzymes to which the target fragment is insensitive. The multidigested library thus contains an intact clone of the target fragment which can then be separated, transfected, reproduced or sequenced.

Restriction Requirement

Applicant notes with appreciation that the Examiner has withdrawn the restriction requirement between Groups I, II, and III. Due to the withdrawal of Claim 20, Claims 1 - 19, and the newly added Claims 20 - 22, are now in the case.

Objections to the Claims

Claims 1 - 15, 17 and 19 have been amended to overcome the objections to those claims in accordance with the Examiner's helpful suggestions. In particular, Claims 12 and 19 have been amended to end with periods. Claim 17 has been amended to depend from Claim 16, and all claims are now drawn to processes. Claim ~~11~~ has been canceled and Claims 21 and 22 added. Withdrawal of the objections to Claims 1 - 15, 17 and 19 is respectfully requested.

35 U.S.C. §101

We acknowledge the rejection of all pending claims under 35 U.S.C. §101 on the ground that the claimed processes are not supported by a specific and/or substantial

asserted utility or a well-established utility. We note with appreciation the Examiner's comments that the claimed processes do not provide an immediate benefit to the public (to one skilled in the art) without further research and experimentation and the concerns regarding the breadth of the claims.

At the outset, we respectfully submit that the invention is drawn to several time-saving processes for isolating an intact clone of a target nucleic acid fragment having a known characteristic from a group of fragments. This alone provides immediate benefit to the public. These processes are more efficient than those known in the art. This provides further benefit.

The Official Action on page 4 states that the "DNA fragment isolated using the claimed method has a known characteristic which may be any characteristic whatsoever.... [w]hat the characteristic is and the identity of the fragment are left for one using the invention to determine." An important aspect of the claimed invention is its broad applicability. The fact that the characteristics of the nucleic acid fragment is not recited does not reduce the utility of the claimed processes at all. Those skilled in the art who wish to employ these processes in their research will be able to readily identify the nucleic acid fragments of interest. Thus, no further research is necessary for those skilled in the art to practice the claimed invention. Rather, the claimed processes can be applied to existing research to save time and enhance efficacy.

Methods for isolating nucleic acid fragments are useful tools for scientists in the fields of genetics and molecular biology. The utility of the processes claimed are well-established with respect to single nucleotide polymorphism "SNPs" and such usefulness can be readily appreciated by those skilled in the art.

Not only does the claimed process constitute useful research tools, it is stated in the Specification on page 3 at lines 19 - 22, Examples 4 and 5, that the claimed invention can be used to study human polymorphism. It is known in the art, for example, that genetics play a major role in coronary artery disease and that most of the genes involved are polymorphic. It is disclosed on pages 28 - 29 of the Specification that the invention "makes it possible to very quickly localize the origin of a genetic disease by analysis of the various members of the family harboring the disease." The diagnostic value of this invention constitutes a credible, specific utility.

For all the reasons enumerated above, Applicant respectfully requests withdrawal of the rejection under 35 U.S.C. §101.

35 U.S.C §112, First Paragraph

Claims 1 - 19 were rejected under 35 U.S.C. §112, first paragraph, on the ground one skilled in the art would not know how to use the claimed invention in view of the alleged lack of a specific and/or substantial asserted utility. It is alleged that the Specification provides no guidance as to the characteristic associated with the nucleic acid fragments. As discussed above, one of the advantageous features of the claimed invention is its universal applicability. The processes of the invention may be applied to clone intact fragments with any known characteristics – i.e. fragments that are known to express certain characteristic or phenotype by the skilled artisan. For example, the claimed invention can be used in the study of human polymorphism. This is described in Examples 4 and 5.

It is stated on page 7 of the Official Action that the "level of predictability in the art is low for circumstances in which the nucleic acid fragments and associated characteristics

are not known. It is not possible to predict the outcome of screening, cloning, and restriction fragmentation when the characteristic being screened for and the nature and source of the nucleic acid are not specified in any way." To reiterate, the skilled artisan using the processes of the claimed invention will possess knowledge of the fragments of interest and, therefore, the target fragments and associated characteristics are both known. Moreover, the claims are drawn to circumstances where the characteristics of the fragments are known.

It is respectfully submitted that one skilled in the art will be able to practice the invention without further experimentation. WO 97/27317, published July 31, 1997, discloses nucleic acid analysis techniques. It is stated on page 31 at lines 20 - 24 that the specific target gene does not need to be identified. The Specification discloses all the steps of the claimed processes. In the Examples provided, both the steps and their modification to suit the practitioner's particular purpose are disclosed. The practitioner of the subject processes will possess the knowledge of source of the nucleic acid fragments, the characteristics to be screened for, and the methods of screening. The Specification discloses that the techniques for making the necessary cloning / expression vectors are known in the art. (Specification, pages 5 - 6). The Examiner's attention is invited to a copy of US Patent No. 6,261,782 which discloses a microarray method capable of detecting the activity of all genes, both known and novel, from any organism.

There is no magical relationship between the number of representative Examples and the breadth of the claims. The number and variety of Examples are irrelevant if the disclosure is "enabling" and sets forth the "best mode contemplated." *In re Borkowski*, 164 USPQ 642 (CCPA 1970). There is no absolute statutory requirement for a "working"

example if the disclosure is such that one skilled in the art can practice the claimed invention. *In re Borkowski*, 164 USPQ 642 (CCPA 1970); *ex parte Nardi*, 229 USPQ 79 (Board of Patent Appeals and Interferences, 1986). Since 35 U.S.C. §112 does not demand a "working example", an application cannot be fatally defective merely because it lacks one. *In re Lang*, 151 USPQ 640 (CCPA 1966); *In re Honn*, 150 USPQ 652 (CCPA 1966); *In re Bartholomew*, 156 USPQ 20 (CCPA 1967).

For the above reasons, the applicant respectfully requests withdrawal of the rejection under 35 U.S.C. §112, first paragraph.

Rejection Under 35 U.S.C §112, Second Paragraph

Claims 1, 2, 5, 6, 9 and 12 - 15 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite. It is respectfully submitted that the foregoing amendments have addressed the indefiniteness concerns. Accordingly, withdrawal of this ground of rejection is respectfully requested.

Conclusion

In view of the above discussion, it is respectfully submitted that all outstanding issues have been addressed and the Application is now in condition for allowance, which is respectfully requested.

Respectfully submitted,

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